

**REMARKS**

Claims 1-7, 10-11 and 13-25 are pending in the application. Claims 8, 9, 12 and 26 are cancelled herein, and claims 1, 14, 19, 22 and 24 are amended herein. Reconsideration of the application is respectfully requested based on the following remarks.

**I. CLAIM OBJECTIONS**

Claim 19 was objected to for informalities. Withdrawal of this objection is requested for at least the following reasons.

Claim 19 has been amended herein to overcome said informalities. In particular, claim 19 has been amended to parse out components as suggested in the Office Action.

Accordingly, withdrawal of this objection is respectfully requested.

**II. REJECTION OF CLAIMS 9 and 19 UNDER 35 U.S.C. § 112**

Claims 9 and 19 were rejected under 35 U.S.C. § 112 for not being enabled. Withdrawal of this rejection is requested for at least the following reasons.

While applicants disagree with the substance of the rejection, claim 9 has been canceled herein, and claim 19 has been amended herein to delete the subject matter in question to facilitate prosecution of the application.

Accordingly, withdrawal of this rejection is respectfully requested.

**III. REJECTION OF CLAIM 24 UNDER 35 U.S.C. § 112**

Claim 24 was rejected under 35 U.S.C. § 112 for a lack of antecedent basis. Withdrawal of this rejection is requested for at least the following reasons.

Claim 24 has been amended herein to delete the subject matter in question.

Accordingly, withdrawal of this rejection is respectfully requested.

**IV. REJECTION OF CLAIMS 1, 5, 12, 15 and 19 UNDER 35 U.S.C. § 102(b)**

Claims 1, 5, 12, 15 and 19 were rejected under 35 U.S.C. § 102(b) as being anticipated by Aitken (4,847,504). Withdrawal of this rejection is requested for at least the following reasons.

Independent claims 1 and 19 have been amended herein to specify that what is adjusted is the **density** of the ion beam. In contrast, Aitken merely teaches allowing more or less of an ion beam to pass through vanes 298 by opening or closing the vanes to a greater or lesser degree. This, however, does not affect the density of the beam, where density relates to a number of ions per unit area. For example, a cross section of an ion beam has a particular number of ions and Aitken does not adjust the concentration or number of ions within that area, but instead merely adjusts the amount of area that can pass through the vanes 298. In contrast, the concentration or density of ions within an area is altered in the instant invention of claims 1 and 19.

Additionally, independent claims 1 and 19 have been amended to recite that the **density** of the ion beam is adjusted by at least one of **electric** and **magnetic fields**. This is not taught in Aitken where more rudimentary mechanical implements are used to allow more or less of an ion beam to pass. For example, in Aitken a beam **width** (as opposed to beam **density**) control arrangement 290 makes use of a stepper motor 291, screw arrangement 292, cam plate 293, lever 294, gears 295 and shafts 295 to move the vanes 298 therein (Col. 25, lines 57-69; Col. 26, lines 1-2).

In addition, Aitken does not teach the feedback type control recited in independent claims 1 and 19 where the beam current **density** is adjusted **in response to** readings taken by the measurement component.

Claims 5 and 15 depend from independent claim 1, and thus are not anticipated by Aitken. Claim 12 has been canceled herein.

Accordingly, withdrawal of this rejection is respectfully requested.

**V. REJECTION OF CLAIMS 4, 6, 16 and 25 UNDER 35 U.S.C. § 103(a)**

Claims 4, 6, 16 and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over by Aitken (4,847,504). Withdrawal of this rejection is requested for at least the following reasons.

Claims 4, 6 and 16 depend from independent claim 1. As discussed above, claim 1 as amended is not taught by Aitken. Accordingly, claims 4, 6 and 16 are also not anticipated by Aitken.

Similar to claim 1, independent claim 22 has been amended herein recite that the **density** of the ion beam is adjusted by at least one of **electric** and **magnetic fields**. As discussed above, this is not taught in Aitken. Claim 25 depends from independent claim 22, and thus is also not anticipated by Aitken.

Accordingly, withdrawal of this rejection is respectfully requested.

**VI. REJECTION OF CLAIMS 13, 14, 18, 20 and 21 UNDER 35 U.S.C. § 103(a)**

Claims 13, 14, 18, 20 and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over by Aitken (4,847,504) in view of Bisson et al. (20020070347). Withdrawal of this rejection is requested for at least the following reasons.

Claims 13, 14 and 18 depend from independent claim 1, and claims 20 and 21 depend from independent claim 19. As discussed above, Aitken does not teach each and every element of independent claims 1 and 19 as amended. Bisson et al. fail to make up for the aforementioned deficiencies of Aitken. In particular, Bisson et al. merely pertain to a Faraday system which generally comprises a Faraday cup, as opposed to an ion implantation system as in the instant application, and thus does not teach, among other things, adjusting the **density** of an ion beam as recited in independent claims 1 and 19.

Accordingly, withdrawal of this rejection is respectfully requested.

**VII. REJECTION OF CLAIMS 7, 8, 22 and 26 UNDER 35 U.S.C. § 103(a)**

Claims 7, 8, 22 and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over by Aitken and Bisson et al. in view of England et al. (5,969,366) Withdrawal of this rejection is requested for at least the following reasons.

Claim 7 depends from independent claim 1, and claims 8 and 26 have been canceled herein. Aitken and Bisson et al. do not teach each and every element of independent claims 1 and 22 as amended. England et al. fail to make up for the aforementioned deficiencies of Aitken and Bisson et al. Moreover, England et al. were particularly cited for a neutralization apparatus in front of the substrate. Such subject matter has been removed from the claims by the cancellation of claims 8 and 26 (as well as the amendment to claim 19) herein.

Accordingly, withdrawal of this rejection is respectfully requested.

**VIII. REJECTION OF CLAIMS 2, 3, 17 and 24 UNDER 35 U.S.C. § 103(a)**

Claims 2, 3, 17 and 24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over by Aitken and Bisson et al. in view of Bright et al. (5,130,552) Withdrawal of this rejection is requested for at least the following reasons.

Claims 2, 3 and 17 depend from independent claim 1, and claim 24 depends from independent claim 22. As discussed above, Aitken and Bisson et al. do not teach each and every element of independent claims 1 and 22 as amended. Bright et al. fail to make up for the aforementioned deficiencies of Aitken and Bisson et al. For example, similar to the above discussion with regard to Aitken, Bright et al. uses mechanical means on an ion beam. For example, vanes 55 are used to control the amount of the beam that can pass there-through, and a motor driven gear 104, screw 106 and arms 108, 110 are utilized to facilitate a mass resolving aperture (Col. 3. lines 60, 61; Col. 4, lines 30-34). Moreover, the beam density is not controlled in Bright et al. nor is it controlled by electric or magnetic fields. Further, Bright et al. do not teach the feedback type control recited in independent claim 1 and dependent claim 24 where the

beam current **density** is adjusted **in response to** readings taken by the measurement component.

Accordingly, withdrawal of this rejection is respectfully requested.

**IX. REJECTION OF CLAIMS 11 and 23 UNDER 35 U.S.C. § 103(a)**

Claims 11 and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over by Aitken and Bisson et al. in view of Tanaka et al. (5,306,921) Withdrawal of this rejection is requested for at least the following reasons.

Claim 11 depends from independent claim 1, and claim 23 depends from independent claim 22. As discussed above, Aitken and Bisson et al. do not teach each and every element of independent claims 1 and 22 as amended. Tanaka et al. fail to make up for the aforementioned deficiencies of Aitken and Bisson et al. For example, a mere open loop system is disclosed in Tanaka et al. where data is input for the type of ion beam to be generated and predetermined operating conditions are read out of memory (Col. 5, lines 25-30, 41-47; Col. 9, lines 57-60) where the predetermined conditions may merely be periodically updated (Col. 11, lines 7-11). This certainly does not teach a closed loop feedback arrangement.

Accordingly, withdrawal of this rejection is respectfully requested.

**X. REJECTION OF CLAIM 10 UNDER 35 U.S.C. § 103(a)**

Claim 10 is rejected under 35 U.S.C. § 103(a) as being unpatentable over by Aitken and Bisson et al. in view of Kimura et al. (20020175296) Withdrawal of this rejection is requested for at least the following reasons.

Claim 10 depends from independent claim 1, and Aitken and Bisson et al. do not teach each and every element of independent claim 1. Kimura et al. fail to make up for the aforementioned deficiencies of Aitken and Bisson et al. For example, Kimura et al. do not adjust beam **density**, but merely open and close a shutter plate 62 that selectively affects irradiation of a substrate 38 by an ion beam.

Accordingly, withdrawal of this rejection is respectfully requested.

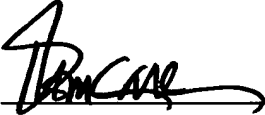
**XI. CONCLUSION**

For at least the above reasons, the claims currently under consideration are believed to be in condition for allowance.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should any fees be due as a result of the filing of this response, the Commissioner is hereby authorized to charge the Deposit Account Number 50-1733, EATNP155US.

Respectfully submitted,  
ESCHWEILER & ASSOCIATES, LLC

By   
Thomas G. Eschweiler  
Reg. No. 36,981

National City Bank Building  
629 Euclid Avenue, Suite 1210  
Cleveland, Ohio 44114  
(216) 502-0600

**CERTIFICATE OF MAILING**

I hereby certify that this paper (along with any paper or item referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first-class mail in an envelope addressed to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date September 8, 2005

  
Christine Gillroy